Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Proposed Changes in the Commission's	)	ET Docket No. 03-137
Rules Regarding Human Exposure to	)	
Radiofrequency Electromagnetic Fields	)	
	)	
To: The Commission	)	

COMMENTS OF THE WI-FI ALLIANCE

The Wi-Fi Alliance ("The Alliance") respectfully offers its Comments on the Notice of Proposed Rulemaking (the "NPRM") in the above-captioned Proceeding.

The Alliance is an international trade association formed in 1999 with the goal of promoting the adoption and commercialization of IEEE 802.11® compatible products, and counts among its membership over 200 companies that design, manufacture, and market such products.

The Alliance and its members are interested parties in this Proceeding and we appreciate the opportunity to provide these comments to the Commission.

INTRODUCTION

1. The Commission has been involved with human exposure issues for many years, starting with the adoption of basic guidelines to protect workers and the general public almost 3 decades ago. The Alliance appreciates the diligent manner in which the Commission has worked with industry on the study of RF effects and the formulation of Specific Absorption Rate ("SAR") values.

2. In 1969 the National Environmental Policy act was adopted requiring government agencies to evaluate the effects of government actions and procedures on the quality of the environment. The Commission addressed this issue in earlier rule makings[1] and also addressed the RF radiation issue by issuing several guidelines. One guideline was developed to answer basic consumer questions[2] and several others were developed to help industry evaluate their RF devices against applicable RF limits.[3]

3. Requirements for RF radiation were addressed in Parts 1 and 2 of the Commission's rules and are referenced in several of the specific radio sections, including Part 101, Part 90, Part 24 and Part 15.

4. The industry has also been active in the development of test methodologies[4] as well as the development of testing equipment, including the composition of test material to accurately simulate human tissue for measurement purposes.

5. With the increasing awareness of the importance of RF safety by the public and the profusion of RF based products that must meet the standards for RF exposure, as well

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[1] *See* ET Docket 93-62 Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation and the 1997 Second Memorandum and Opinion.

[2] Reference OET Guide 65

[3] Reference OET Guide 65, as well as supplements A, B, and C

[4] Reference IEEE Standard 1528, ANSI C95.1, and equivalent ETSI and International Standards .

the need to provide guidelines for the use of various wireless products, this proposed rulemaking is a timely opportunity in helping to establish an efficient RF exposure testing methodology.

6. From The Alliance's viewpoint, there are other RF exposure issues we wish to address that are not specifically addressed in this rule making. These issues arise from interpretations or recent comments that posted on the TCB and FCC websites that originated from the FCC Authorization Branch in Columbia, Maryland. This branch has the difficult task of trying to interpret the rules to provide guidance on how best to apply the regulations to a given product. When addressing the difficult issue of RF Exposure, from the industry view, understanding the operational parameters is important and we would like to propose the RLAN industry and the Authorization Branch work closer together on addressing these interpretations as they apply to the real operational parameters of the radios in order to help clarify the rule interpretations or guidelines.

7. In reviewing the proposed revisions, The Alliance in general supports the proposed changes, however there are some areas that we have addressed where more clarification may be required or alternative methods may be best.

COMMENTS ON ROUTINE EVALUATION AND CATEGORICAL EXCLUSION OF TRANSMITTERS, FACILITIES AND OPERATIONS

8. We concur with the Commission that the industry would be better served by a more consistent set of rules governing RF exposure limits. The factors of power, distance, frequency, and user proximity should be primary in determining appropriate SAR limits and limiting RF energy intercepted by human tissue as recommended by applicable guidelines.

9. We think that the Commission should be clearer in the specification of transmit power for exposure. Exposure limits should be specified in terms of power density such as is currently stated in 47 CFR 1.1310.

10. We support the Commission's proposal of categorically excluding from this requirement devices that meet the distance threshold of 20 cm and the power limit of 1.5 W EIRP at or below 1.5 GHz and 3 W EIRP above 1.5 GHz. We note, however, that even though many Part 15 devices would be categorically excluded by the proposed rules they have been required as a matter of standard practice to be tested regardless.

11. Therefore, while we support categorically excluding certain devices, as per paragraph 14 of the NPRM, we urge the Commission to adopt clearer guidelines in this area to eliminate last minute problems and costs when certifying a categorically excluded device. We also observe that the "categorically excluded from routine examination" approach is in line with the requirements in OET 65 C (01-2001) for low power devices.

12. With the exception of a very few rare cases, indoor installations of 900 MHz, 2.4 and 5 GHz devices do not exceed the specified limits and many operate well below that level. In accordance to the requirements set forth in OET 65 C, manufacturers provide installation information instructing the installer to locate the antennas in such a way as to insure at least 20 cm separation distance for these fixed and mobile locations. The exclusion of these low power systems from exposure assessment will eliminate the requirement of performing unnecessary routine evaluations.

13. This will also address the problem of providing conflicting installation instructions, as manufacturers will then only need to provide instructions informing the installer that such devices must be at least 20 cm from the user or general public.

14. The Alliance supports the Commission's amendments for higher power systems and also supports clarifying power thresholds for the consideration of categorical exclusions. We believe the guidelines set out for use of high gain directional antennas will not cause undue difficulties for the system installer. It is understood that systems operating at or below the exclusion thresholds but closer than the recommended distance of 20 cm are required to be evaluated for either MPE[5] or SAR

[5] Maximum Permissible Exposure

COMMENTS ON REQUIREMENTS FOR EVALUATING SAR FOR CERTAIN SECTION 15.247 UNLICENSED DEVICES

15. The Alliance commends the Commission on addressing Part 15.247 spread spectrum and Digital Transmission Devices with regards to RF exposure. Numerous products operate under this rule including cordless phones, Bluetooth, and 802.11 (b/g) RLAN devices. We believe that U-NII devices operating under Part 15.407 should be brought under the same RF Exposure guidelines as Part 15.247 devices.

16. We support the Commission's view that a 100 mW Part 15 device operating at either 900 MHz or 2.4 GHz does not exceed the 1.6 W/ kg level, as stated in the NPRM. Therefore, we support allowing the exemption from routine testing and filing of data for those Part 15.247 devices operating at 100 mW or less and, by extension, U-NII devices operating under Part 15.407.

17. However, we request that the Commission clarify the situation concerning device transmit power and RF exposure in this area. Our reading of section B of this proceeding would indicate that the transmit power threshold is 100 mW peak, which is a conducted value. The FCC and TCB grants issued also reflect max conducted power unless stated otherwise. However, in reviewing numerous SAR reports for Part 15.247 client card devices, the 100 mW compliance threshold includes the antenna gain[6]. We therefore ask the Commission to clarify the 100 mW threshold as either a conducted or a radiated measurement to help guide the TCBs reviewing of the SAR reports for compliance.

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[6] SAR research report on 2.4 GHz radios and SAR compliance levels , April 2000

18. Concerning RF safety information, we believe that including samples of the warning labels and informational disclosures within user manuals along with applications should be sufficient. We do not see the need to add additional material to Supplement C of OET 65, nor the separate publication of safety information.

COMMENTS ON RF EVALUATION REQUIREMENTS FOR TRANSMITTER MODULES

19. From 1995 onward, the FCC Authorization Branch has allowed certification of radios as modules for systems operating under Part 15.247 of the rules. This allowed the radio manufacturer to produce one base radio he could install in numerous host devices without re-certifying the radio in each host. This requirement was formalized in early 2000 as part of the instruction set for TCBs.[7]

20. The unresolved issue with host-independent devices was addressing the RF exposure aspects of these devices. This issue was discussed in several forums including the FCC-instructed TCB training. The concern voiced by both reviewers and manufacturers was how to ensure compliance and the development of thresholds for exemption.

21. The Alliance commends the Commission for making efforts to address this issue by developing guidelines for Host Independent Devices[8]. We further support the approach of treating the issue of multiple hosts as a Class 1 category change under Part 2 of the rules. We agree that a Class II change for a device would be required in the event of an increase in the SAR value when installed in a different host category.

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[7] Public Notice (DA 00-1407, 15 FCC Red 25,425 (2000)

[8] The term “Host Independent Devices" and their definition was derived from input from both the RLAN Industry members and the FCC at the 2001 TCB training on SAR.

22. We do have some concerns with regard to the various threshold power levels suggested by the Commission for installation in the different host devices. In most cases the manufacturer of the RLAN card does the product evaluation, however, under the new proposal the burden could be shifted in part to the host device manufacturer. This could present difficulties for a Class I change for the system integrator, as he cannot evaluate the changes when it is the grantee that has this responsibility per Part 2 of the rules[9].

23. The Alliance supports the opinion of the Commission that Part 15.247 devices can be certified as modules and we suggest that Part 15.407 devices should also be certifiable as modules.

24. However, we understand that to obtain a module approval as a "Host Independent Device" that the Part 15 transmitter would be required to be evaluated if the power threshold exceeds the maximum exclusion transmitter power for the host device.

25. Unfortunately, it is not clear to us if radio modules need to be tested in the actual host systems or if the industry will be allowed to test them on reference test platforms and simulate the various positions on antenna placement for each type of device. Currently, there is no standard test procedure for performing SAR evaluations of Part 15 devices and therefore we urge the Commission to work with industry standards groups to develop a SAR test standard for these devices.

26. The Alliance would strongly urge the Commission to allow such test platforms to avoid potential issues encountered with using a variety of custom host platforms. However, the Commission should not preclude future innovative designs by limiting testing only to reference test platforms. We would also like to make reference to the

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[9] Reference 4 CFR Parts 2.909. 2.931, 2.932

work of the IEC 62209 standard development committee and encourage the Commission to work cooperatively with that committee and take its work into account.

27. We also note that this issue is linked to similar issues in ET Docket No. 03-201 and hope that together these two proceedings will provide the clarity and cost-effective approaches to the certification process that industry needs to rapidly and economically obtain certification of new products.

COMMENTS ON MEASUREMENT OF SAR FROM MULTIPLE TRANSMITTERS

28. The Alliance concurs with the Commission that multiple transmitters could be incorporated into a host device (e.g., a laptop) without raising SAR concerns provided that the aggregate power level did not exceed the Commission's suggested power levels for that host, e.g. the value of 200 mW for screen-mounted devices in a laptop and 10 mW for keyboard located devices.

29. While we agree with the Commission's view that simple SAR summation of multiple transmitters would be the simplest and most conservative method of estimating overall SAR values and that using this method would allow more rapid and cost-effective processing of certifications as well as providing the highest level of confidence in the complete safety of products, we are concerned that simple addition of the SAR values can result in artificially high, inaccurate SAR values. We believe that it is important to represent the actual values of SAR from multiple transmitters. We therefore recommend that the FCC work with industry to investigate the efficacy of the grid point approach or some other methodology that will result in a better representation of the overall SAR value.

COMMENTS ON REFERENCES TO OET BULLETIN 65, LABELING REQUIREMENTS, AND SPATIAL AVERAGING FOR EVALUATING COMPLIANCE

30. On the above-listed subjects, we are aware of, and concur with, the comments of IEEE 802, and urge the Commission to follow their recommendations on these matters.

COMMENTS ON TRANSITION PERIOD

31. We concur with the Commission on the adoption of a six month transition period for device manufacturers to become familiar with evaluation rules for devices that previously were excluded but may not be so under new guidelines. However we recommend that new rules become effective immediately and that the old rules to remain in effect concurrently for six months after the effective date of the new rules. This would provide for a smoother transition by allowing devices complying with the new rules to be sold immediately while allowing a reasonable grandfather period for devices that comply with the old rules.

SUMMARY AND CONCLUSION

32. The Alliance commends the Commission for actively supporting research into the development of practical and consistent RF exposure values and measurement guidelines. We thank the Commission for recognizing the importance of SAR and RF safety as well as the dependency of tests on the physical configuration of the device being tested and the power levels used. We appreciate the opportunity to provide comments on this issue and look forward to continued involvement in the regulatory process established by the Commission.

Respectfully submitted,

/s/
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